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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/836,711	04/17/2001	Shinya Watanabe	114G1-144	7093

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EXAMINER	
EGAN, BRIAN P	

ART UNIT	PAPER NUMBER
1772	11

DATE MAILED: 02/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/836,711	Applicant(s) WATANABE ET AL.	
	Examiner Brian P. Egan	Art Unit 1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9 and 11-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 11-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Interpretation

1. The Examiner disagrees with the Applicant's contention that a "thin film" is to be defined as a film that is essentially monomolecular in thickness (paper no. 8, pg. 5). Albeit limited in thickness, a "thin film" as known in the art does not require that it be monomolecular in thickness.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/19792 (hereinafter WO '792) in view of Iwasaki et al. (#5,439,754) and Livshits et al. (#5,561,265).

WO '792 discloses a high current suppression shield having a sheet shape (Fig. 8) and comprising an adhesive layer (Fig. 8, #17) on at least one surface of a magnetic thin film. The magnetic thin film is provided on one surface of a film or sheet form substrate composed of a synthetic resin (Fig. 8, #15; see also Translation p. 2, paragraph [0016]). The adhesive layer is provided on one surface of the magnetic thin film with the substrate interposed therebetween (see Fig. 8). The magnetic thin film is provided on one surface of a film or sheet form substrate so that the magnetic thin film can be peeled away from the substrate (Fig. 8, #13).

WO '792 further teaches functionally equivalent magnetic compositions that may be used including iron, iron oxide, nickel, cobalt, ferrosilicon, permalloy, ferrite, sendust, amorphous alloy, and carbon (Translation p. 2, paragraph [0016]) but fails to teach the specific M-X-Y composition as claimed by the Applicant.

Iwasaki et al., however, teach a sputtered magnetic thin film with a thickness between .3 and 4 microns (Col. 10, lines 54-55) comprising an M-X-Y composition ("MM'N composition" – Col. 2, lines 45-46) wherein M is selected from Co and Fe, X is selected from B, Al, Si, Ga, Ge, Ti, Zr, Hf, Nb, Ta, Mo, and W, and Y is N. Iwasaki et al. teach the aforementioned composition for the purpose of providing a magnetic thin film exhibiting a minimal reduction in the saturation magnetic flux density (Col. 5, lines 49-51) while also exhibiting a high Bs, low Hc, and low λs (Col. 2, lines 3-5). It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have combined the teachings of WO '792 and Iwasaki et al. since each of the aforementioned references are analogous insofar as being directed at improving magnetic thin films.

Therefore, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified WO '792 by replacing the magnetic thin film with the M-X-Y composition in Iwasaki et al. in order to providing a magnetic thin film exhibiting a minimal reduction in the saturation magnetic flux density while also exhibiting a high Bs, low Hc, and low λs.

Both WO '792 and Iwasaki et al. are silent as to whether the magnetic compositions may be in the form of the M component existing in granular form and dispersed in an X-Y matrix. It is notoriously well known in the art, however, to form magnetic film layers either by dispersing

ferromagnetic material within a matrix of an organic resin or of a dielectric material as evidenced by Livshits et al. (Col. 3, lines 8-20). Therefore, depending on the desired end product, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified WO '792 and Iwasaki et al. to include a sputtered magnetic thin film wherein the M component exists in granular form and is dispersed in an X-Y matrix.

4. Claims 1-9, 11-14, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/19792 (hereinafter WO '792) in view of Yoshida et al. (#5,827,445) and Livshits et al. (#5,561,265).

WO '792 discloses a high current suppression shield having a sheet shape (Fig. 8) and comprising an adhesive layer (Fig. 8, #17) on at least one surface of a magnetic thin film. The magnetic thin film is provided on one surface of a film or sheet form substrate composed of a synthetic resin (Fig. 8, #15; see also Translation p. 2, paragraph [0016]). The adhesive layer is provided on one surface of the magnetic thin film with the substrate interposed therebetween (see Fig. 8). The magnetic thin film is provided on one surface of a film or sheet form substrate so that the magnetic thin film can be peeled away from the substrate (Fig. 8, #13).

WO '792 further teaches functionally equivalent magnetic compositions that may be used including iron, iron oxide, nickel, cobalt, ferrosilicon, permalloy, ferrite, sendust, amorphous alloy, and carbon (Translation p. 2, paragraph [0016]) but fails to teach the specific M-X-Y composition as claimed by the Applicant.

Yoshida et al., however, teach a composite magnetic article for electromagnetic interference suppression wherein the magnetic loss material is in granular form (Col. 4, lines 3-4) and is selected from the group consisting of Sendust, Permalloy, amorphous alloys, and other

metallic soft magnetic materials (which would include any of the functionally equivalent materials taught by WO '792) (Col. 3, line 66 to Col. 4, line 2). The magnetic loss material is dispersed in a dielectric layer selected from the group consisting of AlO_X and SiO_X (Col. 4, lines 59-67). The magnetic loss material has a large magnetic loss and has a high imaginary part permeability over a wide high frequency range and variable or adjustable magnetic resonance frequencies within a broadened frequency range (Col. 1, lines 36-41; Col. 2, lines 42-47). Yoshida et al. further teach that varying annealing treatments are used to modify the magnetic resonance frequency (Col. 4, lines 38-41). The magnetic resonance frequency exceeds 10 MHz (see Table 1 (Col. 8)). The magnetic article is formed into any desired shape using known mixing and shaping apparatuses (Col. 5, lines 19-23) and the granular magnetic powder has an average thickness less than the thickness of the skin layer (see Abstract). The Examiner agrees with the Applicant's contentions that the magnetic properties of a material are affected by more than just the compositional chemistry of the magnetic material. Yoshida et al. teach more than just an equivalence in the compositional chemistry, however – Yoshida et al. teach that the size of the magnetic material is modified such that it is thinner than the skin layer as noted above – a characteristic detailed by the Applicant in their remarks as being applicable to a material's magnetic properties. Therefore, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified the size of the granular magnetic material (using any known mixing and shaping apparatus as noted above), to have modified the granular material with any functionally equivalent magnetic material as detailed above, and/or to select an annealing treatment depending on the desired end magnetic resonance frequency such that the magnetic material falls within the Applicant's claimed ranges of the magnetic loss factor,

saturation magnetization, magnetic material thickness, DC electric resistivity, mean particle diameter, and anistropic magnetic field, since it has been held both that discovering an optimum value of a result effective variable involves only routine skill in the art, *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), and a change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). Yoshida et al. teach the use of the aforementioned magnetic loss material for the purpose of providing a magnetic article with an improved complex permeability at a high frequency band adaptable for an electromagnetic interference suppressor. Thus, it would have been obvious through routine experimentation to one of ordinary skill in the art to have used a granular magnetic material in a magnetic thin film for the purpose of providing a magnetic article with an improved complex permeability at a high frequency band adaptable for an electromagnetic interference suppressor as taught by Yoshida et al.

Therefore, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified WO '792 by using a granular magnetic material as taught by Yoshida et al. in order to provide a magnetic article with an improved complex permeability at a high frequency band adaptable for an electromagnetic interference suppressor.

The Examiner agrees with the Applicant's contention that neither WO '792 or Yoshida et al . teach the M-X-Y composition comprising M in granular form dispersed in an X-Y matrix. Rather, Yoshida et al. teach a granular form of M coated with X-Y and then dispersed in a polymeric resin matrix. It is notoriously well known in the art, however, that coating a ferromagnetic component with an X-Y composition and dispersing it in a polymeric matrix is

functionally equivalent to dispersing a ferromagnetic material into a matrix of dielectric material (which X-Y is in this case) as evidenced by Livshits et al. (Col. 3, lines 8-20). Therefore, depending on the desired end product, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have provided the M-X-Y composition of Yoshida et al. in a functionally equivalent form as detailed in Livshits et al. by providing a granular M component in an X-Y matrix.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO '792 in view of Yoshida et al. ('445) and Livshits et al. ('265), and further in view of Iwasaki et al. ('754).

WO '792, Yoshida et al., and Livshits et al. teach a high-frequency current suppression body as detailed above. The aforementioned prior art fails, however, to teach a sputtered or vacuum deposited thin film layer. Iwasaki et al., however, teach that it is notoriously well known in the art to form a magnetic material layer by sputtering (Col. 1, lines 35-40). Sputtering is used for the purpose of improving the magnetic properties exhibited by the film (Col. 2, lines 3-5). Thus, it would have been obvious through routine experimentation to one of ordinary skill in the art at the time Applicant's invention was made to have modified the formation process of a magnetic thin film such that it is applied via a sputtering technique for the purpose of providing a magnetic thin film exhibiting improved magnetic properties as taught by Iwasaki et al.

Therefore, it would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have modified that aforementioned prior art by applying the thin film via a sputtering technique as taught by Iwasaki et al. in order to provide a an improved magnetic thin film.

The Examiner notes the Applicant's question as to how a sputtering technique can be applied in combination with the polymeric binder of Yoshida et al. Given that dispersing a ferromagnetic material in a polymeric binder is functionally equivalent to dispersing the ferromagnetic material in a dielectric matrix, it would have been obvious to modify the magnetic layer of Yoshida et al. by dispersing the ferromagnetic material in a dielectric matrix via a sputtering technique.

Response to Remarks

6. Applicant's arguments with respect to claims 1-9 and 11-18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian P. Egan whose telephone number is 703-305-3144. The examiner can normally be reached on M-F, 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Y. Pyon can be reached on 703-308-4251. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Brian P Egan 1/28/04
BPE

HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772 1/29/04